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EXAMINER	
BELL, MELTIN	

ART UNIT	PAPER NUMBER
2129	

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/988,598	SHACKLEFORD ET AL.	
	Examiner	Art Unit	
	Meltin Bell	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☒ Claim(s) *8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2004 and 20 November 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to application **09/988,598** filed **11/20/2001** as well as the Amendment filed 5/3/05. Claims 1-16 filed by the applicant have been entered and examined. An action on the merits of claims 1-16 appears below.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-16 stand rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claims (e.g. "optimally solves", "adjust") raise a question as to whether the claims are directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101. The claims would read better amended to remove language, such as claims 1's graphical user interface adjustable to assist in identifying the optimal solution, incorporating user or human attributes responsible for achieving optimal solutions (see specification page 3, lines 16-27, page 12, lines 31-34 and page 13, lines 1-4, page 14, lines 8-22, page 16, lines 7-12 and lines 21-25 and page 17, lines 23-29).

Claim Rejections - 35 USC § 103

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Applicant's arguments have been fully considered, but are moot in view of new grounds of rejection. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bayer et al* "A genetic algorithm programming environment: Splicer" (10-13 Nov. 1991).

Regarding claim 1:

Bayer et al teaches a graphical user interface (page 140, section 2.2; page 141, left column, paragraph 1) displaying in a first portion thereof (page 143, Output paragraph) an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) of a solution (page 143, Statistics Window paragraph and Fig. 7) for a genetic algorithm that represents potential solutions (page 138, section 1.2 and page 139, left column, paragraph 1) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said graphical user interface comprising: an evolution parameter in a second portion of said graphical user interface (page 141, section 2.4, Control Parameters paragraph; page 142, left column, paragraph 1; Fig. 5) represented using the genetic algorithm, said evolution parameter having a first value, said evolution parameter related to the evolution of said genetic algorithm towards the optimal solution, and interface for the evolution of said solution for said genetic algorithm (page 141, section 2.4, paragraph 2) based upon changing said evolution parameter from said first value to a second value.

Bayer et al doesn't explicitly teach a graphical user interface displaying in a first portion thereof an evolution of a solution for a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the

complex problem according to a fitness function, said graphical user interface comprising: an evolution parameter field in a second portion of said graphical user interface adjustable to assist in identifying the optimal solution to the complex problem represented using the genetic algorithm, said evolution parameter field having a first value, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; and modification interface for modifying the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from said first value to a second value.

However, Examiner takes Official Notice that the complex problem(s), parameter field(s) adjustable to assist in identifying the optimal solution, said parameter field comprising at least one variable and modification interface for modifying in real time based upon an adjustment of said evolution parameter field limitations are conventional and well-known to at least *Rosenberg et al* United States Patent Number (USPN) 6,147,674 A: an evolution parameter field in a second portion of said graphical user interface adjustable to assist in identifying the optimal solution to the complex problem represented using the genetic algorithm, said evolution parameter field having a first value, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; and modification interface for modifying the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from said first value to a second value

(column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; column 3, lines 13-25; column 3, lines 61-67; column 4, lines 1-10; Abstract).

Motivation - The portions of the claimed interface would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* for the purpose of designing and controlling force sensations output by a force feedback interface device since Examiner takes Official Notice that the complex problem(s), parameter field(s) adjustable to assist in identifying the optimal solution, said parameter field comprising at least one variable and modification interface for modifying in real time based upon an adjustment of said evolution parameter field limitations are conventional and well-known.

Regarding claim 2:

The rejection of claim 2 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 2's limitation is taught in *Rosenberg et al*: the modification interface used for the adjustment of said evolution parameter field is a slider (column 44, lines 14-22).

Regarding claim 3:

The rejection of claim 3 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 3's limitation is taught in *Rosenberg et al*: said modification interface to said evolution parameter field is

manipulated by a mouse, joystick (column 3, lines 41-43), knob (column 44, lines 14-22), or touchpad (column 4, lines 11-32).

Regarding claim 4:

The rejection of claim 4 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the reference(s). Claim 4's limitation teachings: said variable (*Rosenberg et al*, column 44, lines 62-67; column 45, lines 1-20) related to the evolution of said genetic algorithm is a number (*Bayer et al*, page 144, Fig. 9) of evaluations (*Bayer et al*, page 144, section 2.1, paragraph 2) performed in said genetic algorithm during a run (*Bayer et al*, page 142, right column, Program Control section).

Regarding claim 5:

Bayer et al teaches a graphical user interface (page 140, section 2.2; page 141, left column, paragraph 1) displaying in a first portion thereof (page 143, Output paragraph) an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) of a solution (page 143, Statistics Window paragraph and Fig. 7) for a genetic algorithm that represents potential solutions (page 138, section 1.2 and page 139, left column, paragraph 1) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said graphical user interface comprising: an evolution parameter in a second portion of said graphical user interface (page 141, section 2.4, Control Parameters paragraph; page 142, left column, paragraph 1; Fig. 5) represented using the genetic algorithm, said evolution parameter having a first value, said evolution

parameter related to the evolution of said genetic algorithm towards the optimal solution, interface for the evolution of said solution for said genetic algorithm (page 141, section 2.4, paragraph 2) based upon changing said evolution parameter from said first value to a second value, and the evolution of said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being a crossover point (page 139, right column, paragraph 3 and Fig. 2).

Bayer et al doesn't explicitly teach a graphical user interface displaying in a first portion thereof an evolution of a solution for a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the complex problem according to a fitness function, said graphical user interface comprising: an evolution parameter field in a second portion of said graphical user interface adjustable to assist in identifying the optimal solution to the complex problem represented using the genetic algorithm, said evolution parameter field having a first value, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; modification interface for modifying the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from said first value to a second value; and said variable related to the evolution of said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being a cutpoint.

However, Examiner takes Official Notice that the complex problem(s), parameter field(s) adjustable to assist in identifying the optimal solution, said parameter field comprising at least one variable and modification interface for modifying in real time based upon an adjustment of said evolution parameter field limitations are conventional and well-known to at least *Rosenberg et al* while the said variable related to the evolution of said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being a cutpoint limitation is conventional and well-known to at least *Shackleford et al* USPN 5,970,487: an evolution parameter field in a second portion of said graphical user interface adjustable to assist in identifying the optimal solution to the complex problem represented using the genetic algorithm, said evolution parameter field having a first value, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; modification interface for modifying the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from said first value to a second value (*Rosenberg et al,* column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; column 3, lines 13-25; column 3, lines 61-67; column 4, lines 1-10; Abstract); and said variable related to the evolution of said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being a cutpoint (*Shackleford et al*, column 15, lines 22-29).

Motivation - The portions of the claimed interface would have been a highly desirable feature in this art for designing and controlling force sensations output by a force

feedback interface device (*Rosenberg et al*, column 3, lines 28-34) and accelerating the execution speed (*Shackleford et al*, column 2, line 56). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* and *Shackleford et al* for the purpose of designing and controlling force sensations output by a force feedback interface device and accelerating the execution speed since Examiner takes Official Notice that the complex problem(s), parameter field(s) adjustable to assist in identifying the optimal solution, said parameter field comprising at least one variable, modification interface for modifying in real time based upon an adjustment of said evolution parameter field and said variable related to the evolution of said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being a cutpoint limitations are conventional and well-known.

Regarding claim 6:

The rejection of claim 6 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the reference(s). Claim 6's limitation teachings: said variable (*Rosenberg et al,* column 44, lines 62-67; column 45, lines 1-20) related to the evolution of said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being mutated (*Bayer et al*, page 139, right column, paragraph) during a run (*Bayer et al*, page 142, right column, Program Control section) of said genetic algorithm.

Regarding claim 7:

Bayer et al teaches a graphical user interface (page 140, section 2.2; page 141, left column, paragraph 1) displaying in a first portion thereof (page 143, Output paragraph) an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) of a solution (page 143, Statistics Window paragraph and Fig. 7) for a genetic algorithm that represents potential solutions (page 138, section 1.2 and page 139, left column, paragraph 1) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said graphical user interface comprising: an evolution parameter in a second portion of said graphical user interface (page 141, section 2.4, Control Parameters paragraph; page 142, left column, paragraph 1; Fig. 5) represented using the genetic algorithm, said evolution parameter having a first value, said evolution parameter related to the evolution of said genetic algorithm towards the optimal solution, interface for the evolution of said solution for said genetic algorithm (page 141, section 2.4, paragraph 2) based upon changing said evolution parameter from said first value to a second value, and said interface comprises a manipulation (page 141, section 2.3, paragraph 2) of said genetic algorithm as indicated by said evolution parameter, said manipulation being related to the evolution of said genetic algorithm.

Bayer et al doesn't explicitly teach a graphical user interface displaying in a first portion thereof an evolution of a solution for a genetic algorithm that represents potential

solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the complex problem according to a fitness function, said graphical user interface comprising: an evolution parameter field in a second portion of said graphical user interface adjustable to assist in identifying the optimal solution to the complex problem represented using the genetic algorithm, said evolution parameter field having a first value, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; modification interface for modifying the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from said first value to a second value; and said modification interface comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting the at least one variable related to the evolution of said genetic algorithm.

However, Examiner takes Official Notice that the complex problem(s), parameter field(s) adjustable to assist in identifying the optimal solution, said parameter field comprising at least one variable and modification interface for modifying in real time based upon an adjustment of said evolution parameter field limitations are conventional and well-known to at least *Rosenberg et al* while the said modification interface comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting the at least

one variable related to the evolution of said genetic algorithm limitation is conventional and well-known to at least *Medl* USPN 6,108,004: an evolution parameter field in a second portion of said graphical user interface adjustable to assist in identifying the optimal solution to the complex problem represented using the genetic algorithm, said evolution parameter field having a first value, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; modification interface for modifying the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from said first value to a second value (*Rosenberg et al*, column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; column 3, lines 13-25; column 3, lines 61-67; column 4, lines 1-10; Abstract; column 15, lines 25-37); and said modification interface comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting the at least one variable related to the evolution of said genetic algorithm (*Medl*, column 4, lines 26-32; column 7, lines 35-40; Fig. 6; column 14, lines 11-15).

Motivation - The portions of the claimed interface would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34) and intelligently leading a user through the entering of parameters (*Medl*, column 7, lines 66-67; column 8, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art at

the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* and *Medl* for the purpose of designing and controlling force sensations output by a force feedback interface device as well as intelligently leading a user through the entering of parameters since Examiner takes Official Notice that the complex problem(s), parameter field(s) adjustable to assist in identifying the optimal solution, said parameter field comprising at least one variable, modification interface for modifying in real time based upon an adjustment of said evolution parameter field and said modification interface comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting the at least one variable related to the evolution of said genetic algorithm limitations are conventional and well-known.

Regarding claim 8:

Bayer et al teaches a computer implemented (page 141, section 2.3, Implementation paragraph) method for an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) of a solution (page 143, Statistics Window paragraph and Fig. 7) for a genetic algorithm that represents potential solutions (page 138, section 1.2 and page 139, left column, paragraph 1) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said method comprising: changing (page 141, section 2.4, paragraph 2) an evolution parameter field within a graphical user interface of a computer system (page 141, section 2.4, Control Parameters paragraph;

page 142, left column, paragraph 1; Fig. 5) from a first value to a second value, resulting in a change, said evolution parameter related to the evolution of said genetic algorithm, the evolution of said solution for said genetic algorithm based upon said changing and displaying the said solution for said genetic algorithm within the graphical user interface (page 144, Fig. 10).

Bayer et al doesn't explicitly teach a computer implemented method for dynamically modifying an evolution of a solution for a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the complex problem according to a fitness function, said method comprising: adjusting an evolution parameter field within a graphical user interface of a computer system from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm; updating the evolution of said solution for said genetic algorithm in real time based upon said adjusting; and displaying the update of said solution for said genetic algorithm within the graphical user interface.

However, Examiner takes Official Notice that the dynamically modifying, complex problem(s), adjusting parameter field(s) resulting in an adjustment, said parameter field comprising at least one variable, updating in real time based upon said adjusting and displaying the update limitations are conventional and well-known to at least *Rosenberg*

et al: adjusting an evolution parameter field within a graphical user interface of a computer system from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm; updating the evolution of said solution for said genetic algorithm in real time based upon said adjusting; and displaying the update of said solution for said genetic algorithm within the graphical user interface (column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; Abstract).

Motivation - The portions of the claimed method would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* for the purpose of designing and controlling force sensations output by a force feedback interface device since Examiner takes Official Notice that the dynamically modifying, complex problem(s), adjusting parameter field(s) resulting in an adjustment, said parameter field comprising at least one variable, updating in real time based upon said adjusting and displaying the update limitations are conventional and well-known.

Regarding claim 9:

The rejection of claim 9 is the same as that for claim 8 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 10:

Bayer et al teaches a computer implemented (page 141, section 2.3, Implementation paragraph) method for an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) of a solution (page 143, Statistics Window paragraph and Fig. 7) for a genetic algorithm that represents potential solutions (page 138, section 1.2 and page 139, left column, paragraph 1) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said method comprising: changing (page 141, section 2.4, paragraph 2) an evolution parameter field within a graphical user interface of a computer system (page 141, section 2.4, Control Parameters paragraph; page 142, left column, paragraph 1; Fig. 5) from a first value to a second value, resulting in a change, said evolution parameter related to the evolution of said genetic algorithm, the evolution of said solution for said genetic algorithm based upon said changing, displaying the said solution for said genetic algorithm within the graphical user interface (page 144, Fig. 10) and a manipulation (page 141, section 2.3, paragraph 2) of said genetic algorithm as indicated by said evolution parameter.

Bayer et al doesn't explicitly teach a computer implemented method for dynamically modifying an evolution of a solution for a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the

complex problem according to a fitness function, said method comprising: adjusting an evolution parameter field within a graphical user interface of a computer system from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm; updating the evolution of said solution for said genetic algorithm in real time based upon said adjusting; displaying the update of said solution for said genetic algorithm within the graphical user interface; and said updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable used in said genetic algorithm.

However, Examiner takes Official Notice that the dynamically modifying, complex problem(s), adjusting parameter field(s) resulting in an adjustment, said parameter field comprising at least one variable, updating in real time based upon said adjusting, displaying the update and direct manipulation of said genetic algorithm limitations are conventional and well-known to at least *Rosenberg et al* while the said updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable used in said genetic algorithm limitations are conventional and well-known to at least *Medl*: adjusting an evolution parameter field within a graphical user interface of a computer system from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the

evolution of said genetic algorithm; updating the evolution of said solution for said genetic algorithm in real time based upon said adjusting; displaying the update of said solution for said genetic algorithm within the graphical user interface (*Rosenberg et al,* column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; Abstract; column 15, lines 25-37); and said updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable used in said genetic algorithm (*Medl,* column 4, lines 26-32; column 7, lines 35-40; Fig. 6; column 14, lines 11-15).

Motivation - The portions of the claimed method would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34) and intelligently leading a user through the entering of parameters (*Medl*, column 7, lines 66-67; column 8, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* and *Medl* for the purpose of designing and controlling force sensations output by a force feedback interface device as well as intelligently leading a user through the entering of parameters since Examiner takes Official Notice that the dynamically modifying, complex problem(s), adjusting parameter field(s) resulting in an adjustment, said parameter field comprising at least one variable, updating in real time based upon said adjusting, displaying the update, direct manipulation of said genetic algorithm and said

updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable used in said genetic algorithm limitations are conventional and well-known.

Regarding claim 11:

The rejection of claim 11 is similar to that for claim 10 as recited above since the stated limitations of the claim are set forth in the references. Claim 11's limitation teachings: said variable (*Rosenberg et al,* column 44, lines 62-67; column 45, lines 1-20) used in said genetic algorithm is a number (*Bayer et al*, page 144, Fig. 9) of evaluations (*Bayer et al*, page 144, section 2.1, paragraph 2) performed each run (*Bayer et al*, page 142, right column, Program Control section) in said genetic algorithm.

Regarding claim 12:

Bayer et al teaches a computer implemented (page 141, section 2.3, Implementation paragraph) method for an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) of a solution (page 143, Statistics Window paragraph and Fig. 7) for a genetic algorithm that represents potential solutions (page 138, section 1.2 and page 139, left column, paragraph 1) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said method comprising: changing (page 141, section 2.4, paragraph 2) an evolution parameter field within a graphical user interface of a computer system (page 141, section 2.4, Control Parameters paragraph;

page 142, left column, paragraph 1; Fig. 5) from a first value to a second value, resulting in a change, said evolution parameter related to the evolution of said genetic algorithm, the evolution of said solution for said genetic algorithm based upon said changing, displaying the said solution for said genetic algorithm within the graphical user interface (page 144, Fig. 10), a manipulation (page 141, section 2.3, paragraph 2) of said genetic algorithm as indicated by said evolution parameter and a probability of any bit in a chromosome representing a potential solution of being a crossover point (page 139, right column, paragraph 3 and Fig. 2).

Bayer et al doesn't explicitly teach a computer implemented method for dynamically modifying an evolution of a solution for a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the complex problem according to a fitness function, said method comprising: adjusting an evolution parameter field within a gráphical user interface of a computer system from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm; updating the evolution of said solution for said genetic algorithm in real time based upon said adjusting; displaying the update of said solution for said genetic algorithm within the graphical user interface; said updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable used in said

genetic algorithm; and said variable used in said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being a cutpoint.

However, Examiner takes Official Notice that the dynamically modifying, complex problem(s), adjusting parameter field(s) resulting in an adjustment, said parameter field comprising at least one variable, updating in real time based upon said adjusting, displaying the update and direct manipulation of said genetic algorithm limitations are conventional and well-known to at least *Rosenberg et al* while the said updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable used in said genetic algorithm limitation is conventional and well-known to at least *Medl* and the cutpoint limitation is conventional and well-known to at least *Shackleford et al*: adjusting an evolution parameter field within a graphical user interface of a computer system from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm; updating the evolution of said solution for said genetic algorithm in real time based upon said adjusting; displaying the update of said solution for said genetic algorithm within the graphical user interface (*Rosenberg et al,* column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; Abstract; column 15, lines 25-37); said updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable

used in said genetic algorithm (*Medl,* column 4, lines 26-32; column 7, lines 35-40; Fig. 6; column 14, lines 11-15); and said variable used in said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being a cutpoint (*Shackleford et al,* column 15, lines 22-29).

Motivation - The portions of the claimed method would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34), intelligently leading a user through the entering of parameters (*Medl*, column 7, lines 66-67; column 8, lines 1-7) and accelerating the execution speed (*Shackleford et al*, column 2, line 56). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al, Medl* and *Shackleford et al* for the purpose of designing and controlling force sensations output by a force feedback interface device as well as intelligently leading a user through the entering of parameters and accelerating the execution speed since Examiner takes Official Notice that the dynamically modifying, complex problem(s), adjusting parameter field(s) resulting in an adjustment, said parameter field comprising at least one variable, updating in real time based upon said adjusting, displaying the update, direct manipulation of said genetic algorithm, said updating further comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting a variable used in said genetic algorithm and cutpoint limitations are conventional and well-known.

Regarding claim 13:

The rejection of claim 13 is similar to that for claim 10 as recited above since the stated limitations of the claim are set forth in the references. Claim 13's limitation teachings: said variable (*Rosenberg et al,* column 44, lines 62-67; column 45, lines 1-20) used in said genetic algorithm is a probability of any bit in a chromosome representing a potential solution of being mutated (*Bayer et al*, page 139, right column, paragraph) during a run (*Bayer et al*, page 142, right column, Program Control section) of said genetic algorithm.

Regarding claim 14:

Bayer et al teaches a machine (Abstract) for storing (page 141, section 2.3, Design paragraphs 3-4) computer code (page 141, section 2.3, Implementation paragraph) to act as a graphical user interface (page 140, section 2.2; page 141, left column, paragraph 1) to a genetic algorithm that represents potential solutions (page 143, Statistics Window paragraph and Fig. 7) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said machine comprising: a first code section stored on disk (page 141, section 2.4, paragraph 2) for receiving a change of an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) parameter (page 141, section 2.4, Control Parameters paragraph; page 142, left column, paragraph 1; Fig. 5) within said graphical user interface from a first value to a second value, resulting in a change, said evolution parameter related to the evolution

of said genetic algorithm towards the optimal solution (page 138, section 1.2 and page 139, left column, paragraph 1); a second code section stored on disk for an interface that based upon a change of said evolution parameter from a first value to a second value; and a third code section stored in memory for displaying (page 143, Output paragraph) the evolution of said solution for said genetic algorithm within the graphical user interface.

Bayer et al doesn't explicitly teach a machine readable memory for storing computer code to act as a graphical user interface to a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the complex problem according to a fitness function, said memory comprising: a first code section stored in memory for receiving an adjustment of an evolution parameter field within said graphical user interface from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; a second code section stored in memory for a modification interface that modifies the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from a first value to a second value; and a third code section stored in memory for displaying the modification of the evolution of said solution for said genetic algorithm within the graphical user interface.

However, Examiner takes Official Notice that the readable memory, complex problem(s), adjustment, field, variable and modification interface that modifies in real time limitations are conventional and well-known to at least *Rosenberg et al*: a first code section stored in memory for receiving an adjustment of an evolution parameter field within said graphical user interface from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; a second code section stored in memory for a modification interface that modifies the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from a first value to a second value; and a third code section stored in memory for displaying the modification of the evolution of said solution for said genetic algorithm within the graphical user interface (column 39, lines 62-67; column 40, lines 1-22; column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; column 3, lines 13-25; column 3, lines 61-67; column 4, lines 1-10; Abstract).

Motivation - The portions of the claimed memory would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* for the purpose of designing and controlling force sensations output by a force feedback interface device since Examiner takes Official Notice that the readable memory, complex problem(s), adjustment, field,

variable and modification interface that modifies in real time limitations are conventional and well-known.

Regarding claim 15:

Bayer et al teaches a machine (Abstract) for storing (page 141, section 2.3, Design paragraphs 3-4) computer code (page 141, section 2.3, Implementation paragraph) to act as a graphical user interface (page 140, section 2.2; page 141, left column, paragraph 1) to a genetic algorithm that represents potential solutions (page 143, Statistics Window paragraph and Fig. 7) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said machine comprising: a first code section stored on disk (page 141, section 2.4, paragraph 2) for receiving a change of an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) parameter (page 141, section 2.4, Control Parameters paragraph; page 142, left column, paragraph 1; Fig. 5) within said graphical user interface from a first value to a second value, resulting in a change, said evolution parameter related to the evolution of said genetic algorithm towards the optimal solution (page 138, section 1.2 and page 139, left column, paragraph 1); a second code section stored on disk for an interface that based upon a change of said evolution parameter from a first value to a second value; and a third code section stored in memory for displaying (page 143, Output paragraph) the evolution of said solution for said genetic algorithm within the graphical user interface.

Bayer et al doesn't explicitly teach a machine readable memory for storing computer code to act as a graphical user interface to a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the complex problem according to a fitness function, said memory comprising: a first code section stored in memory for receiving an adjustment of an evolution parameter field within said graphical user interface from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; a second code section stored in memory for a modification interface that modifies the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from a first value to a second value; a third code section stored in memory for displaying the modification of the evolution of said solution for said genetic algorithm within the graphical user interface; and said memory exists on a server.

However, Examiner takes Official Notice that the readable memory, complex problem(s), adjustment, field, variable and modification interface that modifies in real time limitations are conventional and well-known to at least *Rosenberg et al* while the said memory exists on a server limitation is conventional and well-known to at least *Su et al* "An Internet-based negotiation server for e-commerce": a first code section stored in memory for receiving an adjustment of an evolution parameter field within said

graphical user interface from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; a second code section stored in memory for a modification interface that modifies the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from a first value to a second value; a third code section stored in memory for displaying the modification of the evolution of said solution for said genetic algorithm within the graphical user interface (*Rosenberg et al,* column 39, lines 62-67; column 40, lines 1-22; column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; column 3, lines 13-25; column 3, lines 61-67; column 4, lines 1-10; Abstract); and said memory exists on a server (*Su et al,* page 86, section 7.1, left column, component 3, Repository).

Motivation - The portions of the claimed memory would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34) and updating negotiation offers between two intelligent agents (*Su et al*, page 75, left column, paragraph 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* and *Su et al* for the purpose of designing and controlling force sensations output by a force feedback interface device and updating negotiation offers between two intelligent agents since Examiner takes Official Notice that the readable memory, complex

problem(s), adjustment, field, variable, modification interface that modifies in real time and said memory exists on a server limitations are conventional and well-known.

Regarding claim 16:

Bayer et al teaches a machine (Abstract) for storing (page 141, section 2.3, Design paragraphs 3-4) computer code (page 141, section 2.3, Implementation paragraph) to act as a graphical user interface (page 140, section 2.2; page 141, left column, paragraph 1) to a genetic algorithm that represents potential solutions (page 143, Statistics Window paragraph and Fig. 7) to problems as one or more chromosomes (page 142, left column, paragraph 2) and selects a solution from the potential solutions based on the chromosome that optimally solves (page 139, left column, paragraph 2) the problem according to a fitness function, said machine comprising: a first code section stored on disk (page 141, section 2.4, paragraph 2) for receiving a change of an evolution (page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) parameter (page 141, section 2.4, Control Parameters paragraph; page 142, left column, paragraph 1; Fig. 5) within said graphical user interface from a first value to a second value, resulting in a change, said evolution parameter related to the evolution of said genetic algorithm towards the optimal solution (page 138, section 1.2 and page 139, left column, paragraph 1); a second code section stored on disk for an interface that based upon a change of said evolution parameter from a first value to a second value; and a third code section stored in memory for displaying (page 143, Output paragraph) the evolution of said solution for said genetic algorithm within the graphical user interface.

Bayer et al doesn't explicitly teach a machine readable memory for storing computer code to act as a graphical user interface to a genetic algorithm that represents potential solutions to complex problems as one or more chromosomes and selects a solution from the potential solutions based on the chromosome that optimally solves the complex problem according to a fitness function, said memory comprising: a first code section stored in memory for receiving an adjustment of an evolution parameter field within said graphical user interface from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; a second code section stored in memory for a modification interface that modifies the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from a first value to a second value; a third code section stored in memory for displaying the modification of the evolution of said solution for said genetic algorithm within the graphical user interface; and said memory is used on a server providing a website on the Internet.

However, Examiner takes Official Notice that the readable memory, complex problem(s), adjustment, field, variable and modification interface that modifies in real time limitations are conventional and well-known to at least *Rosenberg et al* while the said memory is used on a server providing a website on the Internet limitation is conventional and well-known to at least *Su et al*: a first code section stored in memory

for receiving an adjustment of an evolution parameter field within said graphical user interface from a first value to a second value, resulting in an adjustment, said evolution parameter field comprising at least one variable related to the evolution of said genetic algorithm towards the optimal solution; a second code section stored in memory for a modification interface that modifies the evolution of said solution for said genetic algorithm in real time based upon an adjustment of said evolution parameter field from a first value to a second value; a third code section stored in memory for displaying the modification of the evolution of said solution for said genetic algorithm within the graphical user interface (*Rosenberg et al,* column 39, lines 62-67; column 40, lines 1-22; column 18, lines 50-58; column 44, lines 62-67; column 45, lines 1-20; column 29, lines 5-18; column 3, lines 13-25; column 3, lines 61-67; column 4, lines 1-10; Abstract); and said memory is used on a server providing a website on the Internet (*Su et al,* page 75, section 2.6, paragraph 2; page 86, section 7, paragraph 1; page 86, section 7.1, left column, components 1 and 3).

Motivation - The portions of the claimed memory would have been a highly desirable feature in this art for designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34) and updating negotiation offers between two intelligent agents (*Su et al*, page 75, left column, paragraph 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Bayer et al* as taught by *Rosenberg et al* and *Su et al* for the purpose of designing and controlling force sensations output by a

force feedback interface device and updating negotiation offers between two intelligent agents since Examiner takes Official Notice that the readable memory, complex problem(s), adjustment, field, variable, modification interface that modifies in real time and said memory is used on a server providing a website on the Internet limitations are conventional and well-known.

RESPONSE TO APPLICANTS' AMENDMENT REMARKS

Claim Rejections - 35 USC § 102 and 35 USC § 103

Applicant argues that numerous limitations in the claims are not met by *Even-Zohar* United States Patent Number (USPN) 6,738,065 individually or in combination with *Shackleford et al* USPN 5,970,487 in the prior rejection of claims 1-16 under 35 U.S.C. 102 and 35 U.S.C. 103:

- claim 1's graphical user interface displaying in a first portion thereof an evolution of a solution for a genetic algorithm (Amendment REMARKS page 10, paragraph 2),
- claim 2's modification interface used for the adjustment of said evolution parameter field is a slider (Amendment REMARKS page 11, paragraph 3),
- claim 5's probability of chromosome bits being cutpoints or mutations (Amendment REMARKS page 12, paragraph 4) and
- claim 7's modification interface comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said

direct manipulation being accomplished by overwriting the at least one variable related to the evolution of said genetic algorithm (Amendment REMARKS page 12, paragraph 3),

for examples. Applicant's arguments have been fully considered, but are moot in view of new grounds of rejection.

The examiner agrees that *Even-Zohar* and *Shackleford et al* taken either individually or in combination do not disclose the interface, method and memory of the inventions defined in claims 1-16. However, *Bayer et al* "A genetic algorithm programming environment: Splicer", *Rosenberg et al* USPN 6,147,674, *Shackleford et al* USPN 5,970,487 and *Medl* USPN 6,108,004 are cited individually and in combination with the Examiner taking Official Notice that claim limitations are conventional and well-known for explicitly and inherently disclosing the subject matter set forth in claims 1-16 by the applicants:

- claim 1's graphical user interface (*Bayer et al,* page 140, section 2.2; page 141, left column, paragraph 1) displaying in a first portion thereof (*Bayer et al,* page 143, Output paragraph) an evolution (*Bayer et al,* page 138, section 1.1, paragraph 2; page 143, The Objective Window paragraph) of a solution (*Bayer et al,* page 143, Statistics Window paragraph and Fig. 7) for a genetic algorithm,
- claim 2's modification interface used for the adjustment of said evolution parameter field is a slider (*Rosenberg et al,* column 44, lines 14-22),

- claim 5's probability of chromosome bits being cutpoints (*Shackleford et al,* column 15, lines 22-29; *Bayer et al*, page 139, right column, paragraph 3 and Fig. 2) or mutations and
- claim 7's modification interface comprises a direct manipulation of said genetic algorithm as indicated by the adjustment of said evolution parameter field, said direct manipulation being accomplished by overwriting the at least one variable related to the evolution of said genetic algorithm (*Medl,* column 4, lines 26-32; column 7, lines 35-40; Fig. 6; column 14, lines 11-15),

for examples.

Applicant argues that there is no motivation to combine *Even-Zohar* with *Shackleford et al* in claims 5-6 and 12-13 (Amendment REMARKS page 13, paragraph 2). Applicant's arguments have been fully considered, but are moot in view of new grounds of rejection. The examiner agrees that the motivations for combining *Bayer et al* with other references include designing and controlling force sensations output by a force feedback interface device (*Rosenberg et al*, column 3, lines 28-34), intelligently leading a user through the entering of parameters (*Medl*, column 7, lines 66-67; column 8, lines 1-7) and accelerating the execution speed (*Shackleford et al*, column 2, line 56).

As set forth above with regards to *Bayer et al*, *Rosenberg et al*, *Shackleford et al* and *Medl*, the items listed explicitly and inherently teach each element of the applicants' claimed limitations. Applicants have not set forth any distinction or offered any dispute between the claims of the subject application, *Bayer et al's* A genetic algorithm programming environment: Splicer, *Rosenberg et al's* Method and apparatus for

designing force sensations in force feedback computer applications, *Shackleford et al's* Genetic algorithm machine and its production method, and method for executing a genetic algorithm and *Medl's* GUI guide for data mining.

Drawings

The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the drawings.

The drawings are objected to because:

- reference numeral 100 is missing from Fig. 1 as suggested on page 1, line 16
- reference numeral 200 is missing from Fig. 2 as suggested on page 5, lines 6-7
- mutated child chromosome register 245 is missing from Fig. 2 as suggested on page 5, line 33
- a decision diagram with yes and no branches is missing from Fig. 2 as suggested on page 6, lines 4-10
- (FIG. 2, STEP 230, CROSSOVER MODULE) would read well inserted after FIG. 3's label
- MUTATION OPERATOR would read well inserted after reference numeral 500 in Fig. 5
- MUTATED CHILD CHROMOSOME would read well inserted under the box of item 525 in Fig. 5
- reference numeral 700 is missing from Fig. 7 as suggested on page 13, line 23

- units along the x- and y-axis (e.g. evaluation vs. cost) of Figs. 7-12 would facilitate the comparative analysis of different evolution parameter settings from page 13, line 17 through page 17, line 22

A proposed drawing correction or corrected drawings (as "replacement sheets") are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

- The explanation of Fig. 1 from page 1, line 14 through page 2, line 12 would read well moved from the Background section to the Detailed Description section on starting on page 4, line 25
- "probability" on page 2, line 6 would read well as "mutation rate"
- 125 on page 2, line 8 would read well as 125'
- "A" on page 2, line 8 would read well as "The"
- the sentence starting on page 2, line 23 and ending on line 25, "The advantages and ... by reference herein", would read well as "U.S. Patent No. 5,970,487 is incorporated by reference herein"
- "setting" on page 4, line 19 would read well as "set of settings"

- "setting" on page 4, line 20 would read well as "representative interface screen of the present invention at a third set of settings"
- "setting" on page 4, line 21 would read well as "representative interface screen of the present invention at a fourth set of settings"
- "setting" on page 4, line 22 would read well as "representative interface screen of the present invention at a fourth set of settings"
- "setting" on page 4, line 23 would read well as "representative interface screen of the present invention at a fifth set of settings"
- "setting" on page 4, line 24 would read well as "representative interface screen of the present invention at a sixth set of settings"
- "chromosome" on page 7, line 15 would read well as "chromosome 350"
- "have" on page 9, line 30 would read well removed
- "With reference now to FIGURE 6 of the Drawings, there is illustrated" on page 11, line 25 would read well as "FIGURE 6 illustrates"
- "similar" on page 12, line 14 would read well as "same"
- "transfer" on page 14, line 6 would read well removed
- "extents" on page 15, line 4 would read well as "extends"
- ", immediately and better directing to a better evolution of a solution" on page 15, lines 14-15 would read well as ". The increase in efficiency results in a more direct evolution of an optimal solution"
- "case, than" on page 16, lines 31-32 would read well as "implementation, the"
- "more or less" on page 17, line 21 would read well removed

Appropriate correction is required.

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is also reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The following replacement abstract is submitted for applicant's consideration to correct the run together sentence on lines 2-6 and for harmony with the claims:

A graphical user interface (GUI) displays in real time and allows a user to dynamically control, adjust, modify, update and overwrite a genetic algorithm's evolution parameter field variables for optimally solving complex problems. Through the GUI and supporting fitness function(s), a user directly manipulates several genetic algorithm (GA) input parameters that constrain the GA GUI's problem solving capabilities: the number of crossovers per run, the probability that any bit will be a cutpoint and the probability that any bit will be mutated, for examples. Whether and how efficiently a genetic algorithm evolves a best solution may be evaluated by the user with this GA GUI during runs of the GA.

Claim Objections

Claim 8 is objected to because of the following informalities:

Regarding claim 8:

- "value, resulting" would read well as "value resulting"

Appropriate correction is required.

Conclusion

The following prior art made of record is considered pertinent to applicant's disclosure and the Examiner's taking of Official Notice:

- *Mikurak* USPN 6,671,818; Problem isolation through translating and filtering events into a standard object format in a network based supply chain

- *Koza et al*; US 5742738; Simultaneous evolution of the architecture of a multi-part program to solve a problem using architecture altering operations

- *Rosenberg et al*; US 5734373 A; Method and apparatus for controlling force feedback interface systems utilizing a host computer

- *Rosenberg et al*; US 6028593 A; Method and apparatus for providing simulated physical interactions within computer generated environments

-*Harrison et al*; US 6741974 B1; Genetically programmed learning classifier system for complex adaptive system processing with agent-based architecture

- *Sato et al*; US 6651046 B1; Optimizing apparatus, optimizing method, and storage medium

- *Gounares et al*; US 6088690 A; Method and apparatus for adaptively solving sequential problems in a target system utilizing evolutionary computation techniques

- *Schmidt*; US 6490566 B1; Graph-based schedule builder for tightly constrained scheduling problems

- *Johnson*; US 6898761 B2; Extensible markup language genetic algorithm

- *Weininger*; US 5434796 A; Method and apparatus for designing molecules with desired properties by evolving successive populations

- *Tarr et al*; US 6546349 B1; Optimal degaussing using an evolution program

- *Shackleford*; US 6477519 B1; Cellular array for implementing the set merging function

- *Shackleford et al*; US 20040215922; Efficient addressing method and apparatus for storage

- *Xiao*; US 6662167 B1; Method for generating near-optimal sequencing of manufacturing tasks subject to user-given hard and soft constraints

- *Fukui*; US 6627900 B2; Methods, based on a genetic algorithm, for configuring parameters of an array of multiple components for cooperative operation to achieve a desired performance result

- *Wood et al*; US 6895557 B1; Web-based media submission tool

- *Sasagawa et al*; US 6412100 B1; Method for solving a layout optimization problem, and computer-readable recording medium having a layout optimization problem processing program recorded thereon

- *Alabaster*; US 6553386 B1; System and method for computerized visual diet behavior analysis and training

- *Tudoreanu et al*; Legends as a Device for Interacting with Visualizations; Washington University, Department of Computer Science Technical report WUCS-01-44; 2001; 7 pages

- *Tudoreanu et al*; Reshapeable visualizations; International Symposium on Multimedia Software Engineering Proceedings; 11-13 Dec. 2000; pp 245-250

- *Berry et al*; Data Mining Techniques For Marketing, Sales, and Customer Support; 1997; pp v-x, 335, 337-359

- *Yang et al*; JPernLite: extensible transaction services for the WWW; IEEE Transactions on Knowledge and Data Engineering; Vol. 11, Is. 4; July-Aug. 1999; pp 639-657

- *Kaiser et al*; An architecture for WWW-based hypercode environments; Proceedings of the 19th international conference on Software engineering; May 1997; pp 3-13

- *Hart et al*; Visualization Channels: Time Multiplexing on a Display; Proceedings of IASTED International Conference on Visualization, Imaging and Image Processing; September 2001; pp 95-100

- *Lund*; Evolving the Shape of Things to Come: Evolving the Shape of Things to Come: A Comparison of Direct Manipulation and Interactive Evolutionary Design; 3rd International Conference on Generative Art; 14 Dec. 2000; pp 1-17

- *Curry*; On the Evolution of Parametric L-systems; University of Calgary Department of Computer Science Technical Report No. 1999-644-07; 9 November 1999; pp 1-27

- *Lim et al*; Tournament Selection for Browsing Temporal Signals; Proceedings of the ACM symposium on Applied computing; Vol. 2; March 2000; pp 570-573

- *Carson et al*; Simulation optimization: methods and applications; Proceedings of the 29th conference on Winter simulation; December 1997; pp 118-126

- *Corcoran et al*; LibGA: a user-friendly workbench for order-based genetic algorithm research; Proceedings of the ACM/SIGAPP symposium on Applied computing: states of the art and practice; March 1993; pp 111-117

- *Skomorokhov*; Genetic algorithms: APL2 implementation and a real life application; Proceedings of the conference on Designing the future; ACM SIGAPL APL Quote Quad; Vol. 26, Is. 4; June 1996; pp 97-106

- *Moroni et al*; Evolutionary computation applied to algorithmic composition; Proceedings of the Congress on Evolutionary Computation; Vol. 2; 6-9 July 1999; pp 807-811

- *Guihua et al*; An evolution model for the creative design; IEEE International Conference on Systems, Man, and Cybernetics; Vol. 1, 8-11 Oct. 2000; pp 645-650

- *Wildberger*; Introduction & overview of "artificial life"—evolving intelligent agents for modeling & simulation; Proceedings of the 28th conference on Winter simulation; November 1996; pp 161-168

- *Damer et al*; Inhabited Virtual Worlds in Cyberspace; Virtual Worlds, Synthetic Universes, Digital Life; 1999; pp. 1-29

- *Filho et al*; Genetic-algorithm programming environments; Computer; Vol. 27, Is. 6; June 1994; pp 28-43

Any inquiry concerning this communication or earlier communications from the Office should be directed to Meltin Bell whose telephone number is 571-272-3680. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:00 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anthony Knight, can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MB
July 23, 2005

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